



**ODISHA POWER TRANSMISSION CORPORATION LIMITED  
OFFICE OF THE GENERAL MANAGER (ELECTRICAL)  
EHT (O & M) CIRCLE, BIDYUTPURI COLONY, BERHAMPUR  
☎: 0680-2291905, ☎0680-2291904  
CIN: U40102OR2004SGC007553**

**TENDER SPECIFICATION FOR TENDER CALL NOTICE No. 08/2016-17**

**FOR**

**SUPPLY OF 1 NO. 415V, 3 Phase, 4 wire ACDB & 1 NO. 220V DCDB  
FOR 132/33KV GRID SUB-STATION, GANJAM UNDER EHT  
(O&M) DIVISION, CHATRAPUR**

**Cost of tender paper Rs. 2,000/- + 5 % VAT=Rs.2,100/-  
(Rupees Two Thousand One Hundred only)**

**ISSUED TO:-**

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ODISHA POWER TRANSMISSION CORPORATION LIMITED  
(A GOVERNMENT OF ODISHA UNDERTAKING)  
OFFICE OF THE GENERAL MANAGER (ELECTRICAL)  
EHT (O & M) CIRCLE, BIDYUTPURI COLONY, BERHAMPUR-760010  
FAX/☎: 0680-2291905, ☎0680-2291904, 9438907601  
CIN: U40102OR2004SGC007553

**NOTICE INVITING TENDER**

**Advt. No. 08/2016-17**

**For and on behalf of OPTCL sealed tenders are invited from Manufacturer/Suppliers having valid I.T. PAN, VAT/CST Clearance for supply of 1 No. 415V, 3 Phase, 4 wire ACDB & 1 No. 220V DCDB required for 132/33 KV Grid Sub-Station, Ganjam under EHT(O&M) Division, Chatrapur.**

Commencement of Sale of Tender Paper: - From Dated 17.09.2016 to Dated 05.10.2016 up to 5.00 PM.

Last Date of Submission of Tender Paper:- Dated 06.10.2016 up to 2.00 PM.

Date of Opening of Tender Paper:- Dated 06.10.2016 at 3.00 PM.

Cost of Tender Paper :- Rs.2,000+ VAT @ 5%= Rs.2,100/-.

For details please visit our website [www.optcl.co.in](http://www.optcl.co.in)

Corrigendum if any will be published in the website only.

General Manager (Elect.)

**TENDER SPECIFICATION FOR TENDER CALL  
NOTICE No. 08/2016-17  
OF EHT (O & M) CIRCLE, BERHAMPUR  
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6.	COST OF TENDER PAPER (Non-refundable)	<b>Rs. 2,000/- + 5 % VAT=Rs.2,100/- (Rupees Two Thousand One Hundred)</b> only by Cash/ Bank Draft drawn in favour of General Manager, EHT (O & M) Circle, Berhampur payable at Berhampur, Odisha.
7.	E.M.D	Bank draft drawn in favour of General Manager, EHT (O & M) Circle, Berhampur payable at Berhampur, Odisha.
8.	SALE OF TENDER PAPER	From Dated <b>17.09.2016</b> to Dated. <b>05.10.2016</b> . (During office hours) available in the office of the General Manager, EHT (O & M) Circle, Berhampur
9.	LAST DATE OF RECEIPT OF TENDER PAPER	<b>Dated. 06.10.2016 up to 2.00 PM.</b>
10.	DATE & TIME OF OPENING OF TENDER	<b>Dated. 06.10.2016 at 3.00 P.M</b>



**NOTICE INVITING TENDER**

**ODISHA POWER TRANSMISSION CORPORATION LTD.,**

**REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,**

**ODISHA, INDIA.**

**CIN: U40102OR2004SGC007553**

**TENDER NOTICE NO- 08/2016-17**

<i>Sl. No</i>	<i>Tender Specification No.</i>	<i>Location Details.</i>	<b>INDIAN RUPEES</b>			<i>Last date of submission &amp; Date of opening Tender.</i>
			<i>Earnest Money Deposit. In Rs.</i>	<i>Cost of Tender Spec.Docum ent</i>	<i>Estimate Value in Rs.</i>	
<b>1</b>	<b>08/2016-2017</b>	<b>Procurement Of 1 No. 415V, 3 Phase, 4 wire ACDB &amp; 1 No. 220V DCDB required For 132/33 KV Grid Sub-Station, Ganjam under EHT (O&amp;M) Division, Chatrapur</b>	<b>4,040/-</b>	<b>2,100/-</b>	<b>4,03,792/-</b>	<b>up to dt-06.10.2016(02.00 PM) and 06.10.2016 at 03.00PM</b>

INSTRUCTION TO BIDDERS

The Bidders must read in detail the “Instruction to Bidders” and “General terms and conditions” before filling the tender documents.

**1. TENDERS:**

A) Bidders must submit their bids with original signature. Only those who have purchased the Tender specification from this office can submit their Tender. Tenders submitted by other means will be rejected.

B) Tender must be submitted in sealed cover subscribed as “**Tender call Notice No. 08/2016-17 “PROCUREMENT OF 1 NO. 415V, 3 Phase, 4 wire ACDB & 1 NO. 220V DCDB REQUIRED FOR 132/33 KV GRID SUB-STATION, GANJAM UNDER EHT (O&M) DIVISION, CHATRAPUR”** on or before 06.10.2016 for opening and addressed to the **General Manager, EHT (O & M) Circle, Berhampur.**

C) Tender shall be submitted either in person or by registered post & any other means of delivery shall not be accepted. Detailed postal address with PIN No., Phone / Fax/Email of bidder must be mentioned in the application requesting for tender document and on the tender bid. The authority is not responsible for receipt of tender after due date due to postal delay or any other reasons.. Tenders received after due date due to postal delay or any other reason will not considered. The tenderer who wants to receive the tender paper by post have to deposit additional Rs.100.00 along with the tender paper cost.

D) The bidder is to deposit EMD in shape of Bank Draft drawn in favour of **General Manager, EHT (O & M) Circle, Berhampur.** The EMD of successful tenderers will be refunded after deposit of security-cum-performance deposit. The EMD of all unsuccessful tenderers shall be refunded on written request after finalization of tender. No interest shall be paid on EMD. No adjustment towards EMD shall be permitted against outstanding amount, if any, remained with the OPTCL.

**2. Experience:**

The Tenderers should be registered order Suppliers/ Manufacturer. The bidders may submit the copy of past experience if any regarding supply of similar materials to GRIDCO/ OPTCL or any other state or central PSUs.

**3. FORFEITURE OF EMD:**

A) In the event the successful tenderer fails to carry out the works / partly carry out the works as per the technical specification the EMD so deposited shall be forfeited.

B) Any deviation from the terms and conditions of the contract the EMD so deposited shall be forfeited without any notice.

**4. INFORMATION ON COMPETITORS:**

Bidders have right to know information on competitors only at the time of opening of the bids. No further information on competitors shall be provided at any other point / stage of the tender without prejudice to Right to Information Act – 2005.

**5. OPENING OF TENDERS:**

A) Copy of PAN card/ TIN/ VAT Registration No. / CST Registration No. & VAT clearance must be enclosed with the tender bids.

**B)** Bidders themselves or their authorized representatives limited to one person only (possessing authorization letter in original) shall be allowed to attend opening event of the tenders.

6. The purchaser may alter the quantities of materials at the time of placing orders. Orders may also be split up among more than one tenderer if necessary. **The purchaser reserves the right to reject the lowest or any other Tender or all tenders without assigning any reason what so ever.**
7. Tender should be prepared clearly and without any overwriting and corrections. Erasures and other changes shall bear the dated initial of the person signing the Tender.
8. In the event of discrepancy or arithmetical error in the schedule of price, the decision of the purchaser shall be final and binding on the tenderer. For evaluation, the price mentioned in words shall be taken if there is any difference in figure and word in the price bid.

**GENERAL TERMS AND CONDITIONS**

1. **Scope of contract:** The scope of contract shall be to delivered materials at destination in accordance with the enclosed technical specification and schedule of requirement (Section-3).
2. **Manner of execution:** All materials should be supplied under the contract shall confirm to the latest publication of relevant IS specification.
3. **Validity:** Tenderers are requested to keep the validity of their offer for a period of 6 months from the date of opening of tender.
4. **Price:** The price quoted by tenderer should be firm, F.O.R. destination inclusive of freight, Insurance, Packing, Forwarding charges inclusive discount, if any.
5. **Taxes:** Taxes, if any shall be mentioned extra. The tender may quote rate in respect of different make materials as per scheduled.
6. **Terms of Payment:** 100% payment with taxes etc. shall be made within 45 days after receipt of materials in full and in good condition & verification thereof by the consignee.
7. **Delivery:** The materials in full quantity shall be delivered within 30 days of receipt of purchase order, failing which purchase order shall be liable for cancellation with forfeiture of Earnest money/ Security Deposit.
8. **Penalty:** If the supplier shall fail to deliver the materials within the delivery period as stipulated under clause No. 5 (Section-II) of this Tender document or any extension granted there to, the purchaser shall recover from the supplier penalty for a sum of half percent (i.e. 0.5 percent) of the contract price for each calendar week or part thereof of delay. However the total amount of penalty shall not exceed 5% (five percent) of the contract/ undelivered items price. Materials will be deemed to have been delivered only when all the component parts are also delivered. If certain components are not delivered in time, the supply will be treated as delayed until such time the missing/ undelivered parts are delivered period.
9. **Extension of time:** If the delivery of materials is delayed due to reason beyond the control of supplier, the supplier shall without delay give justification. The purchaser on receipt of such notice may agree to extend the contract delivery date if reasonable but without prejudice to other terms and conditions of this contract.
10. **EMD:** The tenderers are requested to deposit EMD in shape of D.D. Drawn in favour of **General Manager, EHT (O & M) Circle, Berhampur**. The tender without EMD will be liable for rejection. The D.D / original money receipt for the EMD should be enclosed along with original tender paper.
11. **Security Deposit:** The tenderers whose offer qualifies for acceptance will be awarded Purchase Order and the supplier shall have to be deposit Security-cum-performance guarantee equal to 10% (Ten percent) of ordered value in shape of Cash / Bank Draft in favour of **General Manager, EHT (O & M) Circle, Berhampur**. The Security deposit will be released after two months of completion of the guarantee period subject to fulfillment of guarantee stated under clause-10 on a receipt of application for this purpose. No interest shall be paid to the supplier towards the security deposit so deposited by the supplier.

- 12. Guarantee:** The materials covered under this contract should be guaranteed for trouble free and satisfactory performance against any defect in design, materials and workmanship for a Period of at least **12 (Twelve) months** from the date of delivery. Any defect noticed during this period should be rectified / replaced by the firm free of cost provided such defects are due to faulty design, bad workmanship or bad materials used. The replaced materials should also have similar guarantee. In the event of any breach on default in all or any condition of purchase order Security Deposit will be forfeited.
- 13. Insurance:** Insurance of materials is to be done by the supplier at their own cost. The responsibility of delivery of the materials at destination in good condition rests with the supplier. Any claim with the insurance company Railway authority/ Road transport authorities arises due to loss or damage in transits has to be settled by the supplier. The supplier shall undertake free replacement of materials damage or lost which will be reported by the consignee within 30 Days of the receipt of the materials at destination without waiting for the settlement of the claims with the carriers.
- 14. Despatch Instruction:** The materials should be securely packed and dispatched by Rail/ road transport to **Grid Sub-Station, Ganjam**. The cost of transportation will be borne by the supplier.
- 15. Consignee:** The **SDO, Grid Sub-Station, Ganjam** is the consignee & verifying officer for the contract.
- 16. Paying Officer:** The **DGM, EHT (O&M) Division, Chatrapur** is the paying officer for this contract.
- 17. Submission of VATCC, CST Registration No & PAN:** Clear attested Xerox copies of PAN issued by the competent authority & VAT clearance certificate / CST Registration valid on the date of opening of tender should be submitted along with the tender, failing which the tender will be rejected. The supplier may be requested to produce original PAN card & VAT Clearance certificate at the time of opening of the tender. Those who fail to produce the same & found not to be valid on the date of opening the tender, their tender should be rejected.
- 18. Past Experience of supply, Performance certificate:** Past experience of execution of purchase order of similar type of supply need to be furnished by the bidders.
- 19. Deviation in specification:** If any change in the technical parameters equivalent to the above specification may be clearly mentioned separately.
- 20. Test at Manufactures's Work & Test Certificates:**
- A. Acceptance and routine test at manufacturer's works shall be carried out on AC Distribution Board & DCDB as per stipulation of relevant Indian Standard. In case of the aforesaid items are supplied by the supplier, then necessary arrangements shall be made by the supplier for carrying out Acceptance and routine test at manufacturer's work site. The entire cost of acceptance and routine tests, which are to be carried out, shall be treated as included in the quoted price of all Distribution Board. All the acceptance and routine tests shall be carried out in presence of representative of OPTCL. Three (3) copies of test reports shall be submitted to the General Manager, E.H.T (O&M) Circle, Berhampur for approval and distribution to site.
- B. The manufacturer/supplier shall give at least 15 (fifteen) days advance notice intimating the actual date of inspection and details of all tests that are to be carried out.



**21. Submission of Drawings**

The bidder shall provide detailed Electrical Diagram of both ACDB & DCDB indicating all fuses and bus bars etc. with the size and rating. The offer shall not be considered without the drawing.

**22. Jurisdiction of Court:**

Dispute if any, arising against the supply order issued to the supplier shall be filed by either party in any court of law to which the jurisdiction of Odisha High Court extends.

The Authority reserves the right to reject the notice/ award the contract among any responsive bidders against this tender or without assigning any reason thereof. All other terms and conditions will be governed by OPTCL as per Rules.

**A) TECHNICAL SPECIFICATIONS FOR 415V, 3 phase 4 wire AC DISTRIBUTION BOARD**

**1.0 SCOPE**

The scope of this specification covers for supply of **one no. indoor type 415V, 3 phase 4 wire AC Distribution board** for AC power distribution to various ends of the sub-station including testing at manufacturer's work site including packing & forwarding to site.

**2.0 STANDARDS :**

The AC Distribution boards offered under this specification shall conform to latest revision of relevant Indian Standard Specification.

**3.0 A.C Distribution Board shall be provided with**

- a. One no. name plate showing the details such as manufacturer's name, Sl. No, rating etc.
- b. One no. danger board scripted in Odia and English.
- c. One no. flush mounted ammeter of standard size & reputed make with selector switch
- d. One no. flush mounted voltmeter of standard size with selector switch.
- e. One no. switch fuse disconnecter unit with required rating.
- f. 3 nos. LED type phase indication lamps for incoming feeder.
- g. 3 nos. single phase L.T. CTs of required ratio.
- h. 1 No. 3 Pole, 250A MCCB with required spreaders & extended rotary Handle having breaking Capacity of 36KA at 415V AC, 50Hz. (Confirms to IS/IEC60947-2 & IEC60947-2)
- i. 1 No. 4 Pole, 250A MCCB with required spreaders & extended rotary Handle having breaking Capacity of 36KA at 415V AC, 50Hz. (Confirms to IS/IEC60947-2 & IEC60947-2 )
- j. 4 Nos. 3 Pole, 63A MCCB with required spreader & extended rotary Handle having breaking Capacity of 25KA at 415V AC, 50Hz. (Confirms to IS/IEC60947-2 & IEC60947-2)
- k. 8 Nos. 3 Pole, 32A MCCB with required spreaders & extended rotary Handle having breaking Capacity of 25KA at 415V AC, 50Hz. (Confirms to IS/IEC60947-2 & IEC60947-2)
- l. 6nos. 16A Double Pole MCB having breaking Capacity of 20KA at 240V AC, 50Hz. (Confirms to IS/IEC60898-2.
- m. A cubicle light with fuse and switch shall be provided inside the cubicle operating on A.C

The accuracy class for all indicating meters shall be class 1

**4.0 GENERAL TECHNICAL REQUIREMENTS**

**4.1 Sheet Metal Work:**

**4.1.1** The board frame shall be fabricated using pressed & shaped steel sheet of minimum 2.5mm thickness.

**4.1.2** The Board shall be enclosed by sheet steel of minimum 2.0 mm thickness smoothly finished & levelled. Doors & covers shall be made of 1.6 mm thick sheet steel. Adequate stiffeners shall be provided wherever necessary.

**4.1.3** All panel edges and door edges shall be reinforced against distortion. Cut outs shall be true in shape and devoid of sharp edges.

**4.1.4** The complete structure shall be rigid, self-supporting free from vibration, twists & bends.

**4.2 Constructional Features**

**4.2.1** A metal sill frame made of M.S. channel of 75 x 50 mm ISMC shall be provided as base frame, properly drilled for mounting the board. Necessary hardware shall also be provided for the same.

**4.2.2** It shall be provided with cable entry at bottom with 3 mm removable gland plate.

**4.2.3** The board shall be of Width 1950mm, Height 2275mm & Depth 550mm and it shall be of single front execution. It shall be provided with bus bars running at top along the length of the board in separate sheet steel enclosure. The board shall be provided with gasket all round include removable covers & doors. All the operating devices shall be provided only on the front of the board. Space may be left for future expansion after equipoised of the board.

**4.2.4** All equipment associated with a single circuit shall be housed in a Separate module compartment. The compartment shall be sheet steel enclosed on all sides and rear. A plate covers with a slot to permit wiring connections shall be provided on the side corresponding to the cable alley. The front of the compartment shall be provided with hinged door.

**4.2.5** Only the handles of switches, push buttons knobs and cut-outs for lamps & meters shall be arranged on front of the respective compartment to permit operation without opening the door. All cut-outs shall be gasketed for dust proofing.

**4.2.6** Cable alley shall be provided with suitable hinged door.

**4.2.7** Rear of the board shall be provided with removable panels.

**4.2.8** All doors shall be provided with concealed type hinges and captive screws.

### **4.3 Painting :**

All sheet steel work shall be phosphated in accordance with the following procedure.

**4.3.1** Oil, grease, dirt and swan shall be thoroughly removed by emulsio cleaning.

**4.3.2** Rust and scale shall be removed by pickling with dilute acid followed by washing with running water, rinsing with slightly alkaline hot water and drying.

**4.3.3** After phosphating, through rinsing shall be carried out with clean water, followed by final rinsing with dilute dichromate solution and over drying.

**4.3.4** The panel then powder coated (Colour -Siemens Grey outside & Milky white inside) with an approved color shade as per IS.

**4.3.5** The final finished thickness of paint film on steel shall not be less than 50microns, and shall not be more than 80 microns.

**4.3.6** Finished painted appearance of equipment shall present an aesthetically, pleasing appearance, free from dents and uneven surfaces.

### **4.4 Main Bus & Taps:**

**4.4.1** The board shall be provided with three phase and neutral bus bars covered by PVC Tube with DMC insulators. .

**4.4.2** Bus bars shall be of uniform cross section throughout the length of the Board and up to the incoming terminals of feeder circuit.

**4.4.3** The bus bars shall be made of high conductivity aluminium alloy of E91E grade.

**4.4.4** Bus bars shall be adequately supported and braced to withstand the Stresses due to the specified short circuit currents. Bus bar supports shall be made of hylum sheets, glass reinforced moulded plastic material or cast resin.

**4.4.5** Separate supports shall be provided for each phase of the bus bars

**4.4.6** Bus bar joints shall be complete with high tensile steel bolt and washers and nuts. Bus bars shall be thoroughly cleaned at the joint locations and a suitable contact grease shall be applied just before making a joint.

### **4.5 MCCB/MCB :**

**4.5.1** The MCCB/MCB of reputed make shall be provided with a quick make-quick break type of switching mechanism which a definite speed of travel of moving contacts is ensured.

**4.5.2** The MCCB/MCB shall employ a maintenance free contact syste designed to minimize the let through energies while handing abnormal currents.

**4.5.3** An indicator showing ON, OFF and TRIPPED positions shall be provided.

### **4.6 Fuses :**

**4.6.1** Fuses shall be of the HRC cartridge fuse-link type having a certf rupturing capacity of

not less than 36kA at 440V. Fuses up to 63A distribution systems of medium short circuit levels may be of HRC cartridge screw-cap type, having a certified rupturing capacity of not less than 25KA at 440 V and 10KA at 250V DC.

**4.6.2** Fuses shall be provided with visible indication to show that they have operated.

**4.6.3** Fuses shall preferably be mounted in moulded plastic carries and shall be complete with fuse bases.

#### **4.7 Indicating Instruments and Meters :**

**4.7.1** Electrical indicating instruments shall be of reputed make.

**4.7.2** Indicating instruments shall have provision for zero adjustment outside the cover.

**4.7.3** Instrument dials shall be parallax free with black numerals on a white dial.

#### **4.8 Indicating Lamps**

The indicating lamps shall be Cluster LED type having low watt consumption and shall be provided, translucent lamp cover of appropriate colour. The bulb & lens shall be easily replaceable from the front.

#### **4.9 Control & Selector Switches:**

**4.9.1** The control & selector switches shall be adequately rated for the purpose intended and shall be rotary type. They shall be provided with escutcheon plates clearly marked to show the position.

#### **4.10 Internal Wiring:**

**4.10.1** Wiring inside the board shall be carried out with 1100/650V grade. PVCinsulated, stranded conductor wires. Minimum size of conductor for power circuits shall be 4 sq.mm. copper or stranded wires. Control circuits shall be wired with copper conductor of at least 2.5 sq.mm. for CT circuits & 1.5sq.mm. for other circuits,.

**4.10.2** Engraved identification ferrules, marked to correspond with the wiring diagrams shall be fitted to each wire. Ferrules shall be of yellow colour with black lettering.

**4.10.3** Wiring shall be terminated on preferably stud type terminal blocks such that the wires are connected by cable-lugs with nuts & washers/lock nuts.

#### **4.11 Terminal Blocks**

**4.11.1** Terminal blocks shall be of reputed make. It shall comprise finely threaded pairs of brass studs of at least 6 mm diameter, links between each pair of studs, washers, nuts and lock nuts. The studs, shall be accurately locked within the mounting base to prevent their turning. Insulated barriers shall be provided between adjacent terminals.

**4.11.2** Terminal blocks shall be adequately rated to carry the current of the associated circuit .

#### **4.12 Earthing :**

**4.12.1** The Board, shall be provided with an earth bus bar running along the entire length of the board. Material and size of the earth bus bar shall be as specified. at either end of the earth bus, one (1) clamp type terminal with nuts, bolts a earthing conductor shall be provided for bolting Purchaser's earthing conductor.

**4.12.2** Earth bus bars shall be supported at suitable intervals.

**4.12.3** Positive connection between all the frames of equipment mounted in the switchboard and earth bus bar shall be provided by using insulated copper wires/bare busbars of cross section equal to that of the bus bar.

**4.12.4** All instrument shall be connected to the earth bus bar using 1100/650V grade, 2.5 sq.mm. Stranded copper earthing conductor.

**4.12.5** Provision shall be given for earthing at two points of the Board.

## **B) TECHNICAL SPECIFICATION FOR 220 V D.C. DISTRIBUTION BOARD**

### **1.0 SCOPE**

The scope of this specification covers for supply of one no. indoor type 220V DC Distribution board from where DC supply will be catered to various control & Relay panels including testing at manufacturer's work site, packing & forwarding to site.

### **2.0 STANDARDS :**

The DC Distribution board offered under this specification shall conform to latest revision of relevant Indian Standard Specification.

### **3.0 D.C Distribution Board shall be provided with**

- a. One no. name plate showing the details such as manufacturer's name, Sl. No, rating etc.
- b. One no. danger board scripted in Odia and English.
- c. One no. flush mounted of standard size, reputed make DC with selector switch
- d. One no. flush mounted DC Ammeter of standard size & reputed make with selector switch.
- e. One no. flush mounted DC Voltmeter of standard size & reputed make with selector switch
- f. One no. switch fuse disconnecter unit with required rating.
- f. 3 nos. 220V DC LED type phase indication lamps for incoming feeder.
- g. 1no. DC Shunt
- h. 2 No. 3 Pole, 100A MCCB with required spreader & extended rotary handle having breaking Capacity of 15KA at 220V DC, (Confirms to IS/IEC60947-2 & IEC60947-2 )
- i. 5 Nos. 3 Pole, 32A MCCB with required spreaders & extended rotary handle having breaking Capacity of 15KA at 250V DC. (Confirms to IS/IEC60947-2 & IEC60947-2)
- j. 1no. 16A Double Pole MCB having breaking Capacity of 10KA at 250V DC, (Confirms to IS/IEC60898-2)
- k. 1no. 6A Double Pole MCB having breaking Capacity of 10KA at 250V DC, (Confirms to IS/IEC60898-2)
- l. A cubicle light with fuse and switch shall be provided inside the cubicle operating on D.C.

The accuracy class for all indicating and integrating meters shall be class 1

### **4.0 GENERAL TECHNICAL REQUIREMENTS**

#### **4.1 Sheet Metal Work:**

- 4.1.1 The board frame shall be fabricated using pressed & shaped steel sheet of minimum 3 mm size for front side & bottom and 2.5 mm size for other sides
- 4.1.3 All panel edges and door edges shall be reinforced against distortion. Cut outs shall be true in shape and devoid of sharp edges.
- 4.1.4 The complete structure shall be rigid, self-supporting free from vibration, twists & bends.

#### **4.2 Constructional Features**

- 4.2.1 A metal sill frame made of M.S. channel of 75 x 50 mm ISMC shall be provided as base frame, properly drilled for mounting the board. Necessary hardware shall also be provided for the same.
- 4.2.2 It shall be provided with cable entry at bottom with 3 mm removable gland plate.
- 4.2.3 The board shall be of Width 800mm, Height 2150mm & Depth 500mm and it shall be of single front execution. The board shall be provided with gasket all round including removable covers & doors. All the operating devices shall be provided only on the front of the board.
- 4.2.4 All equipment associated with a single circuit shall be housed in a Separate module

compartment. The compartment shall be sheet steel enclosed on all sides and rear. The front of the compartment shall be provided with hinged door.

**4.2.5** Only the handles of switches, push buttons knobs and cut-outs for lamps & meters shall be arranged on front of the respective compartment to Permit operation without opening the door. All cut-outs shall be gasketed for dust proofing.

**4.2.6** All doors shall be provided with concealed type hinges and captive screws.

**4.3 Painting** :All sheet steel work shall be phosphated in accordance with the following procedure.

**4.3.1** Oil, grease, dirt and swan shall be thoroughly removed by emulsion cleaning.

**4.3.2** Rust and scale shall be removed by pickling with dilute acid followed by washing with running water, rinsing with slightly alkaline hot water and drying.

**4.3.3** After phosphating, through rinsing shall be carried out with clean water, followed by final rinsing with dilute dichromate solution and over drying.

**4.3.4** The panel then powder coated (colour -Siemens Grey outside & Milky) white inside with an approved colour shade as per IS.

**4.3.5** The final finished thickness of paint film on steel shall not be less than 50 microns, and shall not be more than 80 microns.

**4.3.6** Finished painted appearance of equipment shall present an aesthetically, pleasing appearance, free from dents and uneven surfaces.

**4.4 Main Bus & Taps**:

**4.4.1** The board shall be provided with a Main copper bus bar of electrolytic copper confirming IS 8130/84, which will be liberally rated. It will receive D.C. input from incoming cables through TBs and Switch & HRC fuse for each +Ve and -Ve line of D.C Supply. The input to MCB of each outgoing feeder shall be extended from +Ve D.C and -Ve D.C bus. The thickness and width of bus bar shall not be less than 5 mm and 30 mm respectively.

**4.4.2** Bus bars shall be of uniform cross section.

**4.4.3** The bus bars shall be made of high conductivity copper.

**4.4.4** Bus bars shall be adequately supported and braced to withstand the Stresses due to the specified short circuit currents. Bus bar supports shall be made of hylum sheets, glass reinforced moulded plastic material or cast resin.

**4.4.5** Separate supports shall be provided for each phase of the bus bars

**4.4.6** Bus bar joints shall be complete with high tensile steel bolt and washers and nuts. Bus bars shall be thoroughly cleaned at the joint locations and a suitable contact grease shall be applied just before making a joint.

**4.4 MCCB/MCB** :

**4.4.1** The MCCB/MCB of reputed make like Siemens, L & T, ABB, Schneider, GE etc. shall be provided with a quick make- quick break type of switching mechanism which a definite speed of travel of moving contacts is ensured.

**4.4.2** The MCCB/MCB shall employ a maintenance free contact system designed to minimize the let through energies while handing abnormal currents.

**4.4.3** An indicator showing ON, OFF and TRIPPED positions shall be Provided.

**4.5 Fuses** :

**4.5.1** Fuses shall be of the HRC cartridge fuse-link type.

**4.5.2** Fuses shall be provided with visible indication to show that they have operated.

**4.5.3** Fuses shall preferably be mounted in moulded plastic carries and shall be complete with fuse bases.

**4.6 Indicating Instruments and Meters** :

**4.6.1** Electrical indicating instruments shall be of reputed make.

**4.6.2** Indicating instruments shall have provision for zero adjustment outside the cover.

**4.6.3** Instrument dials shall be parallax free with black numerals on a white dial.

**4.6.4** The meters and shunts shall be of good quality suitable to give a long and satisfactory service.

**4.7 Control & Selector Switches:**

**4.7.1** The control & selector switches shall be adequately rated for the purpose intended and shall be rotary type. They shall be provided with escutcheon plates clearly marked to show the position.

**4.8 Internal Wiring:**

**4.8.1** Each MCB shall be then connected to Terminal Blocks by using insulated Copper cable of not less than 6 mm<sup>2</sup>. The design of DCDB shall be such that there shall be minimum voltage drop. Special care shall be taken to avoid voltage drop at every level. The wiring shall be neat and clean without any congestion and shall be supported mechanically as well as tied up to withstand transit vibrations. More than two wires shall not be terminated at a point.

**4.9.2** Engraved identification ferrules, marked to correspond with the wiring diagrams shall be fitted to each wire. Ferrules shall be of yellow colour with black lettering.

**4.9.3** Wiring shall be terminated on preferably stud type terminal blocks such that the wires are connected by cable-lugs with nuts & washers/lock nuts.

**4.10 Terminal Blocks**

**4.10.1** Terminal shall be of reputed make. It shall comprise finely threaded pairs of brass studs of at least 6 mm diameter, links between each pair of studs, washers, nuts and lock nuts. The studs, shall be accurately locked within the mounting base to prevent their turning. Insulated barriers shall be provide between adjacent terminals.

**4.10.2** Terminal blocks shall be adequately rated to carry the current of the associated circuit .

**4.11 Earthing :**

Proper earthing arrangements shall be provided on the DCDB

**Annexure – I**  
**SCOPE OF EQUIPMENT TO BE SUPPLIED**

Sl. No.	Description of item	Unit	Quantity
1	415V, 3 Phases 4 wire AC Distribution Board with provision of 2nos.250A Incomers and 16nos. 63A/32A/16A Outlets {Details as per Technical Specification mentioned in Section III (A)}	Nos.	01
2	220V DC Distribution Board with provision of 2nos.100A Incomers and 7nos. 32A/16A/06A outlets {Details as per Technical Specification mentioned in Section III (B)}	Nos.	01

NB : Any Deviation in the Technical specification should be clearly mentioned in the space below the

General Manager (Elect.)



**Annexure-II**

**SCHEDULED OF PRICE**

Sl. No.	Description of item	Unit	Quantity	Rate in Rs.	Amount in Rs.
1	415V, 3 Phases 4 wire AC Distribution Board with provision of 2nos.250A Incomers and 16 Nos. 63A/32A/16A Outlets	Nos.	01		
2	220V DC Distribution Board with provision of 2 Nos.100A Incomers and 7nos. 32A/16A/06A outlets	Nos.	01		
4	<b>Total Amount</b>				

Dated

Signature of Contractor with Seal

**Annexure-III**  
**DETAILED DATA SHEET TO BE FURNISHED BY THE TENDERERS**

1. Name of the Contract with detailed postal address:
2. Earnest money deposited vide Bank Draft No. \_\_\_\_\_ Date \_\_\_\_\_ / By  
Cash amount in Rs. \_\_\_\_\_ (Rupees  
\_\_\_\_\_ ) Only vide money receipt No.  
\_\_\_\_\_ Dated \_\_\_\_\_
3. Attested copy of PAN No. / VAT Clearance Certificate :      Furnished/Not  
furnished
4. Attested copy of the valid License :      Furnished / Not furnished
5. Agreed to furnish Contract security deposit :      Yes / No
6. Agreed to accept payment terms as per the contract :      Yes / No
7. Agreed to adhere completion of work as per the tender :      Yes / No
8. Agreed to accept penalty clause as per the tender :      Yes / No
9. Attach past experience certificate for the similar jobs  
in OSEB / GRIDCO or any other agencies :      Yes / No
10. Agreed to keep validity of the offer one year from  
the date of tender opening without any validation in tender  
clause. :      Yes / No
11. Date of submission of tender. :      Dt. \_\_\_\_\_
12. Electrical Diagram indicating all fuses and bus bars etc.  
with the size and rating :      Furnished/Not Furnished

Dated:  
Place:

Signature of the Tenderers  
with seal.